

# The structure of the person's technical aptitude and factors of its development

Kazan Federal University, 420008, Kremlevskaya 18, Kazan, Russia

---

## Abstract

© 2018, Association for Social Studies Educa. All rights reserved. The relevance of the study is determined by the increasing role of engineering and technical workers in the socio-economic development of a society. Orientation of school leavers to the choice of engineering professions becomes one of the main tasks of secondary education in the 21st century. The article clarifies the concept of "technical aptitude ", determines its compositional structure, and reveals the main factors of its development. The authors proceed from the assumption that the most technically gifted person is characterized by professionally important qualities of an engineer. The results of the research conducted in Russia with 19 winners and runners-up of the national schoolchildren's Olympiad's regional stage in Handicraft, are presented to determine the main psychological and pedagogical factors in the development of the aptitude. It is shown that a high level of motivation to achieve success in the field of technical creativity plays a decisive role in the development of technically gifted children.

<http://dx.doi.org/10.17499/jsr.44474>

---

## Keywords

Engineer, Engineering activity, Motivation to achieve success, Technical abilities, Technical talent, Technical thinking

## References

- [1] Aminov, T.M. (2014). System of professional education in regions of pre-revolutionary Russia (through the example of Bashkiria). *Voprosy Obrazovaniya*. 3: 244-262.
- [2] Baytak, A., Tarman, B., & Ayas, C. (2011). Experiencing technology integration in education: Children's perceptions. *International Electronic Journal of Elementary Education*, 3(2), 139-151.
- [3] Bochkareva, T. N., Akhmetshin, E. M., Korotkova, A. L., Lyitkina, N. L., Nasipov, I. S., & Khaliullina, A. G. (2017). Research of students' cognitive activity. *Espacios*, 38(60)
- [4] Buchneva, R. S., Trufanova T.(2016). A Demanded and popular professions in the labor market: tendencies and prospects of development. Modern tendencies of development of the theory and practice of management in Russia and abroad: Proceedings of the VI international scientific-practical conference. Responsible editor: E. A. Kolesnichenko. Tambov: Tambov state University named after G. R. Derzhavin, 2016. Pp. 12-22. (in Russian)
- [5] Caldwell, Daniel William (2012). Educating Gifted Students in the Regular Classroom: Efficacy, Attitudes, and Differentiation of Instruction. *Electronic Theses & Dissertations*. 822. URL: [https://digitalcommons.georgiasouthern.edu/cgi/viewcontent.cgi?article=1826&context=et\\_d](https://digitalcommons.georgiasouthern.edu/cgi/viewcontent.cgi?article=1826&context=et_d) (date accessed: 18.01.2018).
- [6] Dimitriadis, Christos (2010). Developing mathematical giftedness within primary schools a study of strategies for educating children who are gifted in mathematics // *School of Sport and Education Brunel University*. 327 p.

- [7] Heller, K. Diagnosis and development of gifted children and adolescents // Modern concepts of talent and creativity/ ed.d. b. Bogoyavlenskaya. Moscow: Young guard, 1997. Pp. 243-259. (in Russian)
- [8] Il'Yaschenko, D.P., Chinakhov, D.A., Danilov, V.I., Schlyakhova, G.V., Gotovshchik, Yu.M. (2015). Physical Nature of the Processes in Forming Structures, Phase and Chemical Compositions of Medium-Carbon Steel Welds. IOP Conference Series: Materials Science and Engineering, 91 (1), art. no. 012006.
- [9] Korableva O. N., Kalimullina O. V. (2016) Strategic approach to the optimization of organization based on BSC-SWOT matrix. Paper presented at the 2016 IEEE International Conference on Knowledge Engineering and Applications, ICKEA 2016: 212-215.
- [10] Korableva O., Kalimullina O., Kurbanova E. (2017a) Building the monitoring systems for complex distributed systems: Problems & solutions. Paper presented at the ICEIS 2017-Proceedings of the 19th International Conference on Enterprise Information Systems, 2: 221-228
- [11] Korableva O. N., Razumova I. A., Kalimullina O. V. (2017b) Research of innovation cycles and the peculiarities associated with the innovations life cycle stages. Paper presented at the Proceedings of the 29th International Business Information Management Association Conference-Education Excellence and Innovation Management through Vision 2020: From Regional Development Sustainability to Global Economic Growth: 1853-1862.
- [12] Khrustaleva, T. M. Psychology of abilities. Perm: Perm state University of Humanities and education, 2013. 180 p. (in Russian)
- [13] Leana-Tascilar, Marilena Z. (2014). Interview with Albert Ziegler about Gifted Education. Journal for the Education of the Young Scientist and Giftedness, Volume 2, Issue 2, pp. 98-100
- [14] Levenberg, I., Shaham C. (2014). Formulation of Word Problems in Geometry by Gifted Pupils. Journal for the Education of the Young Scientist and Giftedness, Vol. 2, Issue 2, pp. 28-40.
- [15] Mauch, J., & Tarman, B. (2016). A historical approach to social studies laboratory method. Research in Social Sciences and Technology, 1(2), 55-66.
- [16] Merzon, E. E., Sterz O. M., Panfilov A. N.(2013). The lability and flexibility of thinking as factors of development of technical giftedness of the personality // Modern problems of science and education. No. 3. URL: <http://www.science-education.ru/109-9381> (date accessed: 18.10.2017).
- [17] Merzon, E.E., Shterts O.M., Shatunova O.V., Panfilov A.N. (2014). Sex-age Dynamics of Development of Technical Giftedness' Signs. Life Science Journal. T. 11. № 6. Pp. 539-542. (in Russian)
- [18] Osadchy, E. A., & Akhmetshin, E. M. (2015). Integration of industrial and educational sphere in modernization of economic relations. Journal of Applied Economic Sciences, 10(5)
- [19] Savenkov, A. I. Psychology of children's talent. Moscow: Genesis, 2010. 440 p.
- [20] Sheffield, L.J. (2003) Extending the challenge in mathematics: developing mathematical promise in K-8 students. Thousand Oaks, CA: Texas Association for the Gifted and Talented; Corwin Press. 151 p.
- [21] Shkilev, R. E., Samsonova, E. V., Kazanchuk, I. D., & Isupova, M. M. (2018). Rendering imagery in the semantic structure of stable terminological word combinations. Rupkatha Journal on Interdisciplinary Studies in Humanities, 10(1), 128-133. 10.21659/rupkatha.v10n1.14
- [22] Subotnik, Rena F., Olszewski-Kubilius Paula, and Frank C. Worrell (2011). Rethinking Giftedness and Gifted Education: A Proposed Direction Forward Based on Psychological Science. Psychological Science in the Public Interest, No 12(1). Pp. 3-54
- [23] Tarman, B., & Kuran, B. (2015). Examination of the cognitive level of questions in social studies textbooks and the views of teachers based on bloom taxonomy. Kuram ve Uygulamada Egitim Bilimleri, 15(1), 213-222. 10.12738/estp.2015.1.2625
- [24] Tesleva E., Belkova T. (2014) Acoustic and elastic properties of Cu3Au alloy between 4.2...300 K. Applied Mechanics and Materials. Vol. 682, p. 519-524.
- [25] Teplov, B. M. (1982) the Abilities and giftedness, Psychology of individual differences. Moscow: Moscow state University publishing House, 1982. 404 p. (in Russian)